

Amendments to the Specification

Please replace the paragraph [0121] beginning at page 24 in the substitute specification, with the following rewritten paragraph:

[0121] Fig. 8 shows a sectional view of a plasma processing apparatus employed in the seventh embodiment of the present invention. Referring to Fig. 8, while the interior of a vacuum chamber 1 is maintained at a specified pressure by introducing a specified gas from a gas supply unit 2 into the vacuum chamber 1 and simultaneously performing evacuation by a pump 3 as an evacuating device, a high-frequency power of 100 MHz is supplied to a spiral antenna 13 by an antenna-use-high-frequency power supply 12, and electromagnetic waves are radiated into the vacuum chamber 1 via a dielectric window 14 provided opposite the substrate 7 placed on the substrate electrode 6. Then, plasma is generated in the vacuum chamber 1, where plasma processing such as etching, deposition, and surface reforming can be carried out on the substrate 7. A substrate-electrode-use-high-frequency power supply 8 for supplying high-frequency power to the substrate electrode 6 is provided, so that ion energy that reaches the substrate 7 can be controlled. Also, an annular, groove-like plasma trap 9 provided opposite to the substrate 7 makes it possible to process the substrate 7 while the plasma distribution on the substrate 7 is controlled. The plasma trap 9 is provided in the dielectric window 14 so as to be defined by an inner, an upper, and an outer faces formed in the dielectric window 14. Out of surfaces of the vacuum chamber 1 opposing the substrate 7, a vacuum chamber wall portion 10 of the dielectric window 14 (i.e., the cross hatched portion of the dielectric window 14 that forms a section of the inner surface of the vacuum chamber) surrounded by the plasma trap 9 has an area 0.8 time that of the substrate 7, as one example. Also, the groove width of the plasma trap 9 is 10 mm, and the groove depth of the plasma trap 9 is 15 mm, as one example.

Please replace the paragraph [0124] beginning at page 25 in the substitute specification, with the following rewritten paragraph:

[0124] The 7th embodiment of the present invention has been described above for the case where the plasma trap 9 is provided in the dielectric window 14. However, the plasma trap 9 may also be provided outside the dielectric window 14 so as to be defined by three faces, that is, an inner face, an upper face, and an outer face formed in the upper wall 1a of the vacuum chamber 1 as shown in an eighth embodiment of Fig. 10. Further, the plasma trap 9 may be provided between the vacuum chamber 1 and the dielectric window 14 so as to be defined by three faces, that is, an inner face and an upper face formed by the dielectric window 14, and an outer face formed by the upper wall 1a of the vacuum chamber 1 as shown in a 9th embodiment of Fig. 11. As shown in Figs. 10 and 11, the plasma trap 9 can be arranged in the upper surface of the vacuum chamber so that the outer diameter of the plasma trap is less than the inner side surface diameter of the vacuum chamber, and a that a metallic surface portion 1a is formed between the outer periphery of the plasma trap and the inner side surface of the vacuum chamber 1. In other words, as explained above with respect to Fig. 1A, the annular groove (plasma trap) 9 has a bottom face, an outer-side face closest to the side wall of vacuum chamber 1, and an inner-side face farthest from the side wall of the vacuum chamber 1. The outer-side face of the annular groove 9 is located inside the inner surface of the side wall of the vacuum chamber 1. As stated above, the terms “inside” and “outside” as used herein mean closer to and further from, respectively, the vertical center axis of the vacuum chamber (i.e., the terms “inside” and “outside” describe a relative position of an object with reference to the vertical center axis of the vacuum chamber).